OIPE IAP68
FEB 21 2006
PATENT & TRADEMARK OFFICE

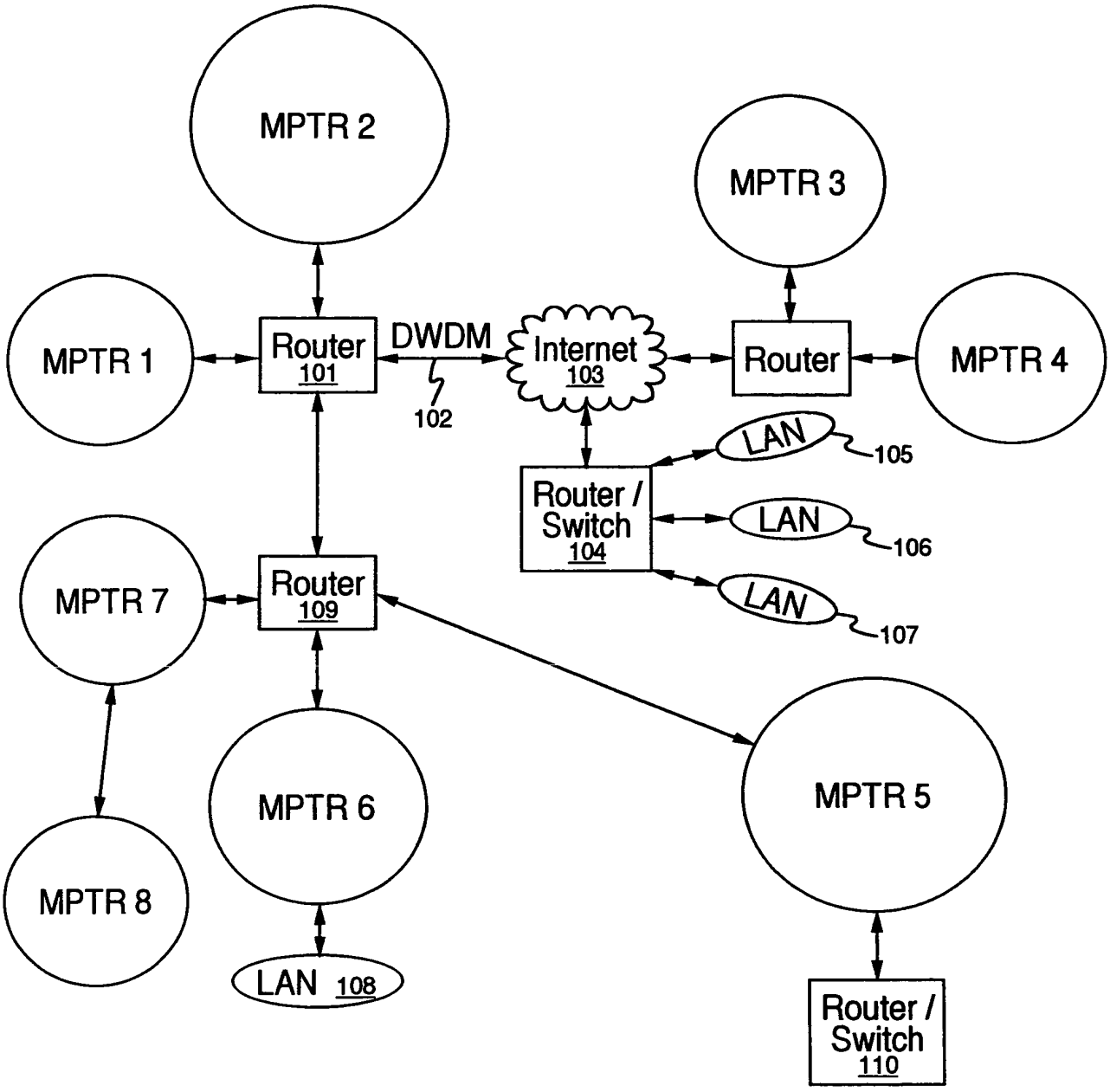

Figure 1

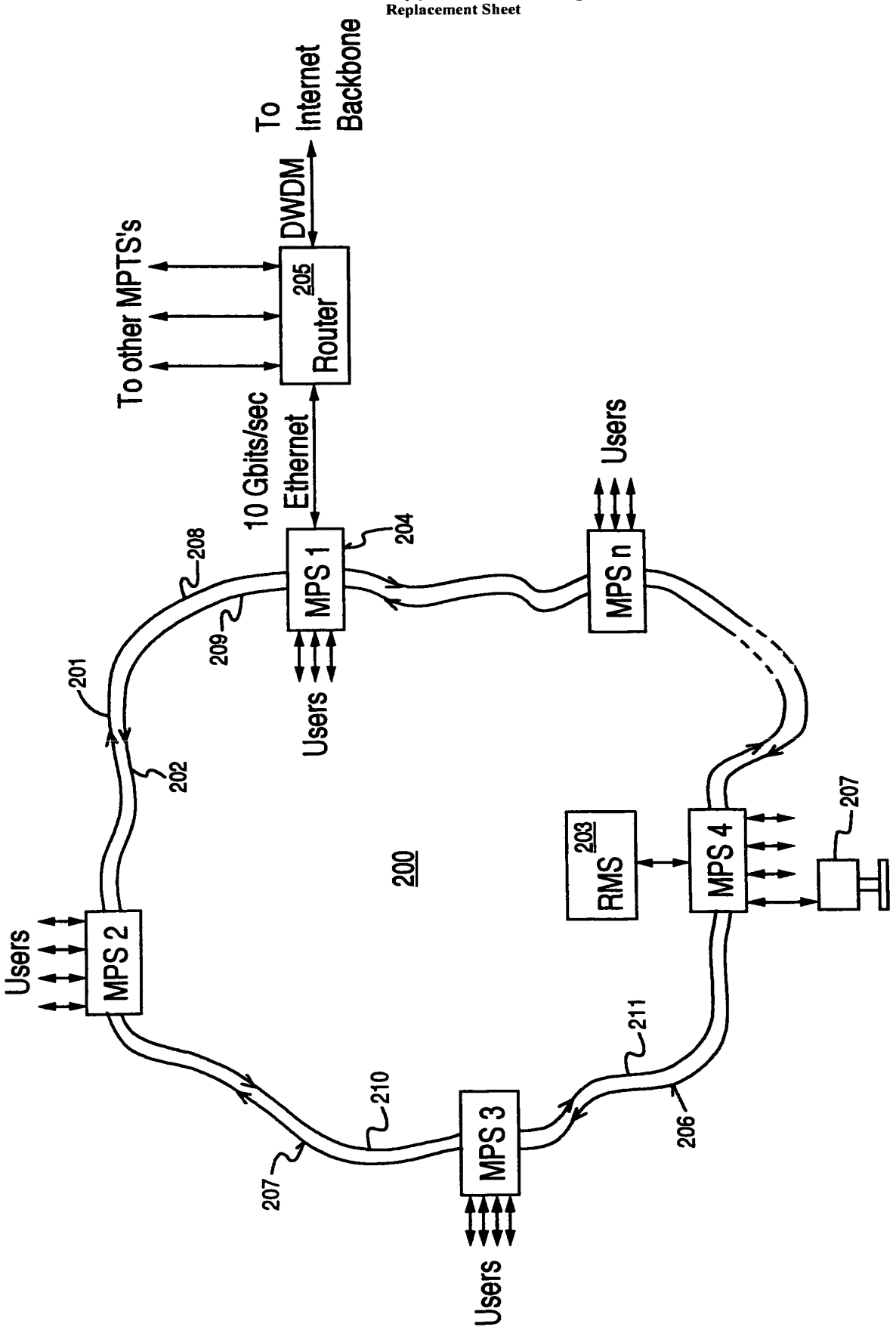
To Internet Backbone
DWDM
205
Router
To other MPTS's
10 Gbits/sec Ethernet
MPS 1
204
208
209
Users
Users
MPS n
201
202
200
203
RMS
MPS 4
207
Users
MPS 2
211
210
MPS 3
207
206
Users

Figure 2

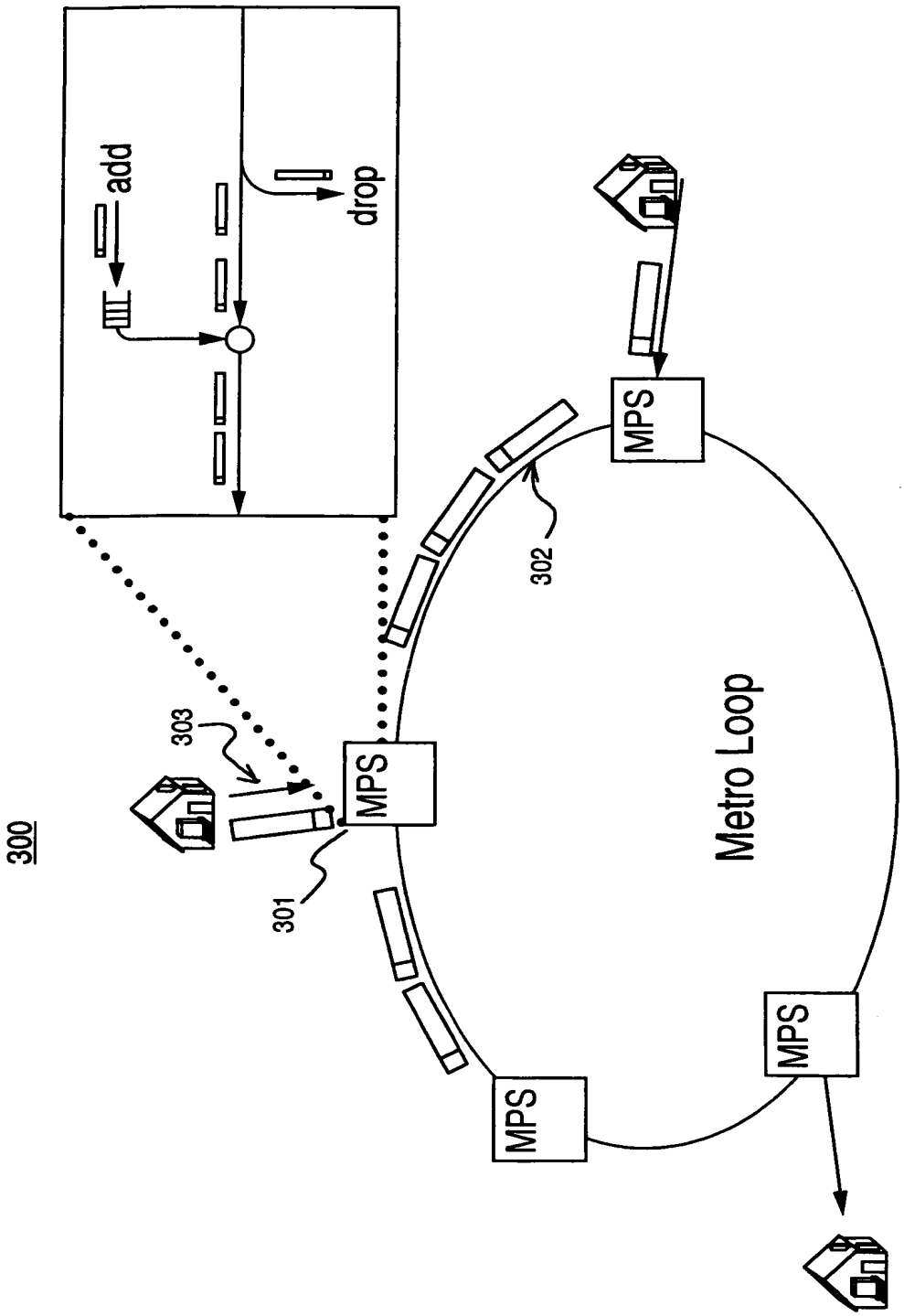

Figure 3

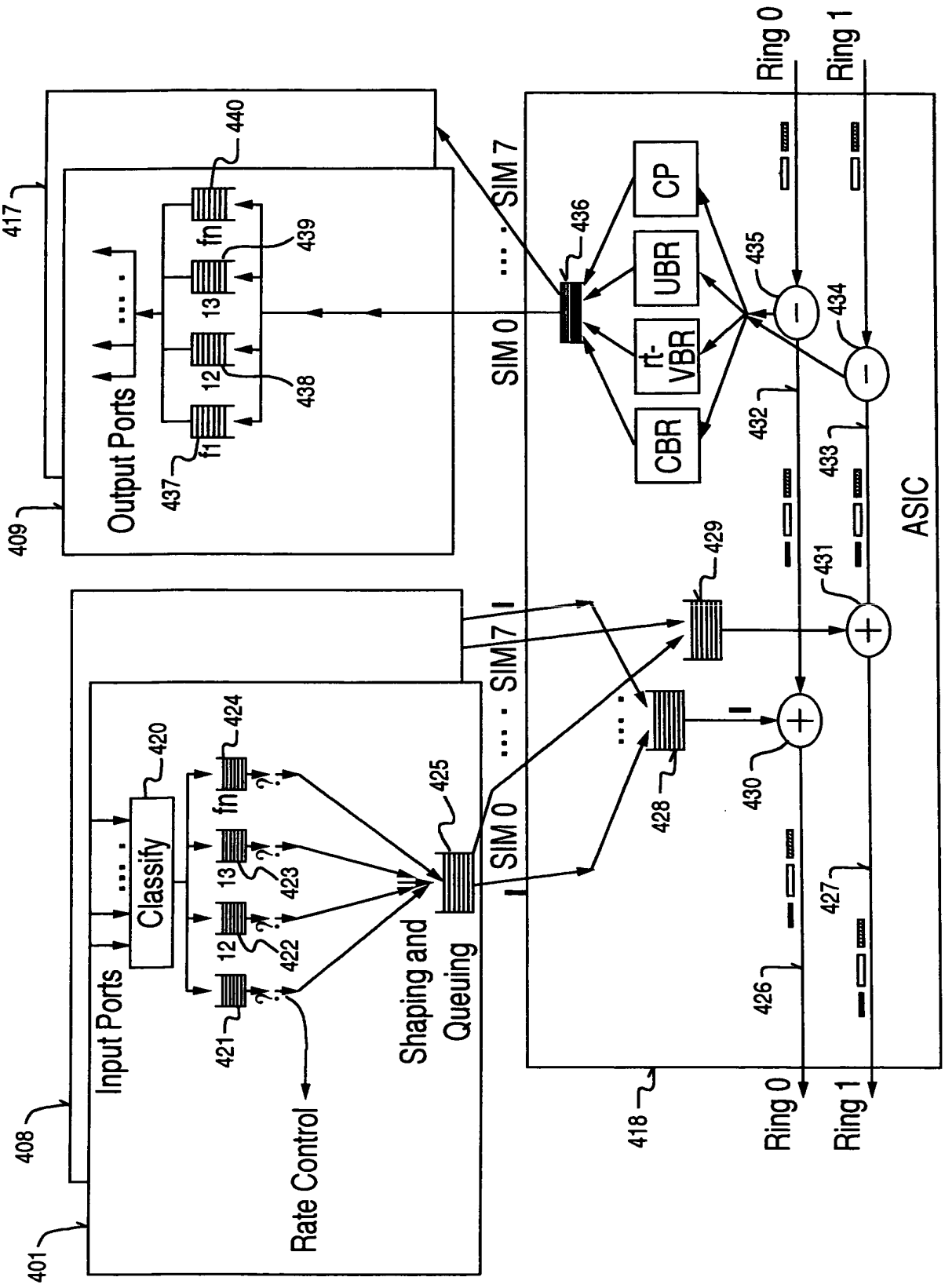
401
408
Input Ports
Classify
420
421
12
13
fn
424
422
423
Rate Control
Shaping and Queuing
425
SIM 0
SIM 7
409
417
Output Ports
437
f1
438
439
440
418
ASIC
Ring 0
Ring 1
426
427
428
429
430
431
432
433
434
435
436
CBR
rt-VBR
UBR
CP

Figure 4

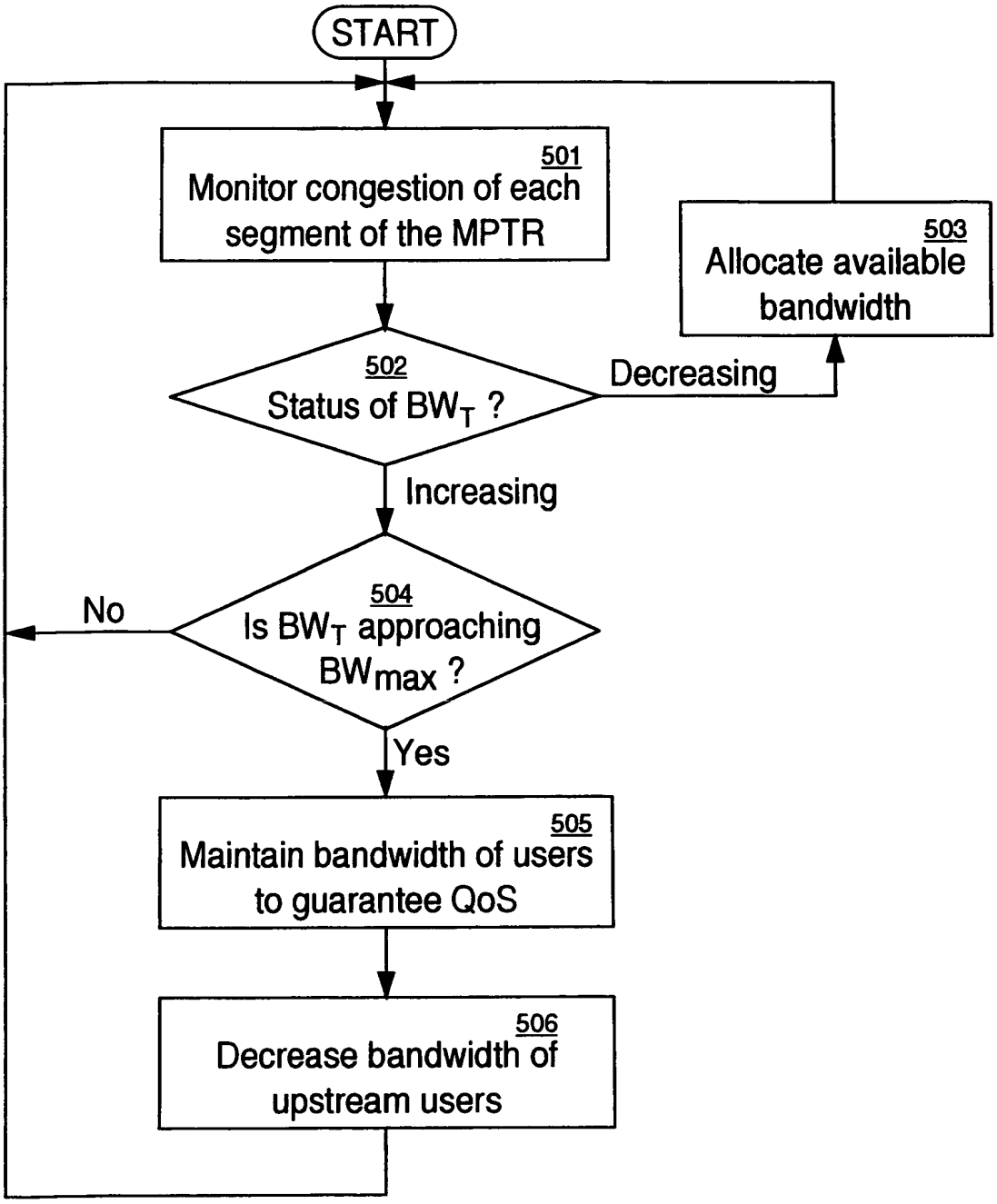
START
501
Monitor congestion of each segment of the MPTR
503
Allocate available bandwidth
502
Status of BW_T ?
Decreasing
Increasing
504
Is BW_T approaching BW_{max} ?
No
Yes
505
Maintain bandwidth of users to guarantee QoS
506
Decrease bandwidth of upstream users

Figure 5

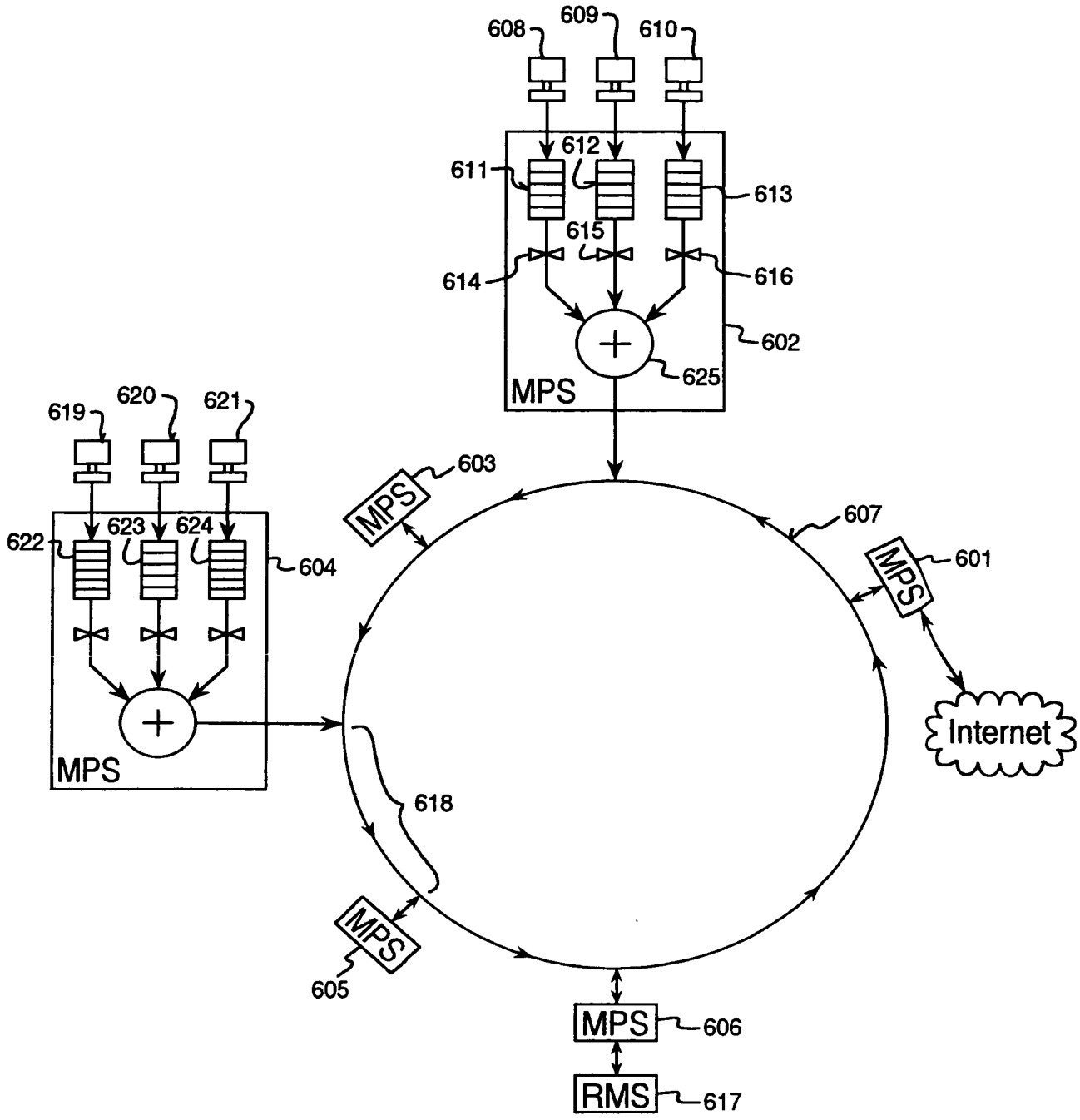
608
609
610
612
611
613
615
614
616
602
625
MPS
619
620
621
603
MPS
623
624
622
604
607
601
MPS
Internet
618
MPS
605
MPS
606
RMS
617

Figure 6

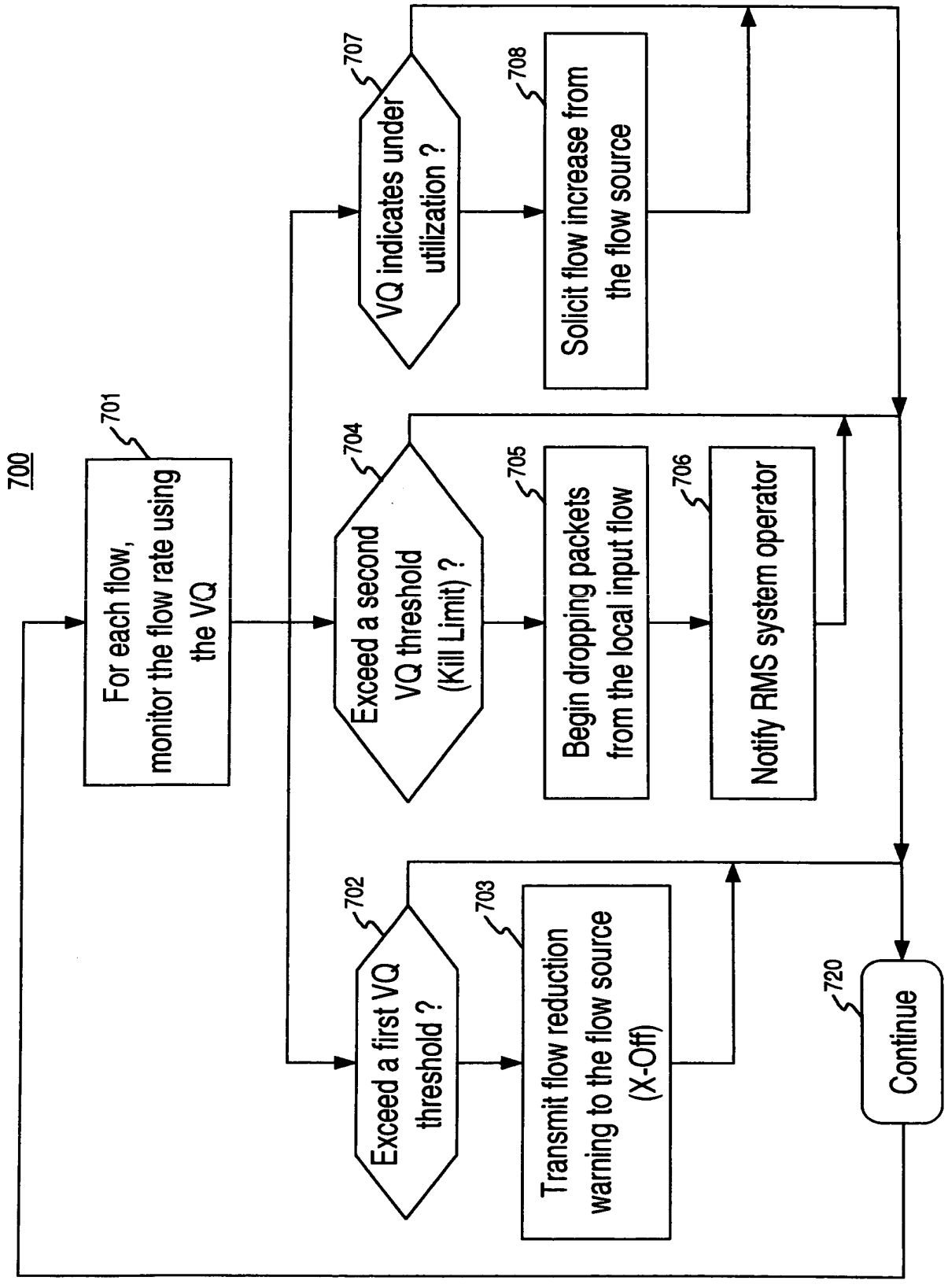
700
For each flow, monitor the flow rate using the VQ
701
Exceed a first VQ threshold ?
702
Transmit flow reduction warning to the flow source (X-Off)
703
Exceed a second VQ threshold (Kill Limit) ?
704
Begin dropping packets from the local input flow
705
Notify RMS system operator
706
VQ indicates under utilization ?
707
Solicit flow increase from the flow source
708
Continue
720

Figure 7

Flow ID	Valid	X-OFF	Action	P_Ring	C_Ring	Dist.	SIM Fanout	M/U	Protection	BE Weight
0 bit	1 bit	1 bit	1 bit	1 bit	1 bit	2 bits	9 bits	1 bit	1 bit	5 bits
1	1	No	Kill	R1		Transit	0000000000	0	Guarantee	0
2	1	Yes	Pass	R2		receive	1000000000	0	BE(STD)	1
3	1		Pass	R2		Transit	0000000000	0		0
4	1		Pass	R1		Insert	0000000001	0		63
5	1		Pass	R1		copy	1000000000	1	Guarantee	0
.										
.	0									
.										
999999	1					Insert				0

Continued on sheet 9 / 9

Figure 8

OBLON, SPIVAK, et al
Docket No: 257375US28
Inventor: Adisak Mekkittikul, et al
Serial No: 09/611,180
Reply to Notice Re Drawings dated: 12/19/05
Replacement Sheet

Continued from sheet 8 / 9

Reserved rate	R Finish time	S Finish time	R_OR	S_OR	Reserve	Note
14 bits	32 bits	32 bits	1 bit	1 bit	4 bits	8.4 sec @ 5ns clk
10 Mbps	435ABC	435ABC				Backlogged flow
80 Mbps	NULL	NULL				Non-Backlogged flow
NULL	NULL	NULL				Unused entry
1 Gbps	3535DF	3535DF				Backlogged flow
100 Mbps	.	.				Pickup for Multicast
.	.	.				.
.	.	.				.
.	.	.				.
8.5 Gbps	NULL	NULL				Non-Backlogged flow

Figure 8 (Continued)